

Notice of Allowability

Application No.

09/822,768

Examiner

Abbas I Abdulsalam

Applicant(s)

WASHIO ET AL.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 08/11/04.
2. ☒ The allowed claim(s) is/are 1, 5-16 and 18-52 (renumbered as 1-48).
3. ☒ The drawings filed on 30 March 2001 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some* c) ☐ None of the:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

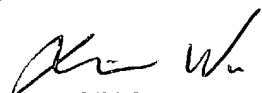
Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____


XIAO WU
PRIMARY EXAMINER

DETAILED ACTION***Allowable Subject Matter***

1. The following is an examiner's statement of reasons for allowance:

Murade (USPN 6531996) teaches a liquid crystal device (200) including a TFT array substrate (1) with a plurality of pixel electrodes (11) disposed in a matrix fashion. Murade discloses a plurality of data lines (35), a plurality of scanning lines (31) and a plurality of switching devices such as TFTs (30) as shown in Fig. 1. Murade further teaches a pre-charging circuit (201) for supplying a pre-charging signal having predetermined voltage level to the plurality of data lines (35) before an image signal is supplied. In conjunction to pre-charging circuit (201), Murade teaches a sampling circuit (301) for sampling the image signal and supplying the resultant signal to the plurality of data lines (3). For example, Murade teaches that sampling any of the image signals VID1-VID6 corresponding to data lines (35) in order that the resultant signals on the corresponding data lines (35) are written (col. 13, lines 35-39).

Kimura (USPN 6281826) teaches a method of pre-charging signal lines, whereby the charging/discharging currents of the signal lines may be adjusted by controlling the period of time for which the switches are connected to the signal lines thereby pre-charging the signal lines to a predetermined voltage levels. Kimura teaches a signal line pre-charging circuit (6300) as shown in Fig. 66 including a switch controller (6320) and pre-charging lines (L1 and L2) held at pre-charging voltages, (Vpca and Vpcb), (as illustrated in Fig. 46) in order that the signal line (S)

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is pre-charged, so that the voltage on the signal lines (S) periodically varies with a period, T as shown in Fig. 46B. See col. 40, lines 56-64, col. 43, lines 63-67 and col. 44, lines 1-4, Fig. 46 and Fig. 66.

Regarding claim 1, none of the cited references teaches or suggests an image display comprising a plurality of pixels disposed in matrix; a display section, having a plurality of data signal lines for respective columns of the plurality of pixels and having a plurality of scanning signal lines corresponding to respective rows of the plurality of pixels, for displaying an image by writing a video signal from each data signal line into each pixel in synchronism with a scanning signal which is outputted from each scanning signal line; a data signal line driving circuit for outputting the video signal to the plurality of data signal lines; a scanning signal line driving circuit for outputting the scanning signal to the plurality of scanning signal lines; a pre-charging circuit for writing a pre-charging voltage inputted in synchronism with a pre-charging control signal into the plurality of data signal lines in a predetermined period of time; wherein a pre-charging voltage stabilizing section for stabilizing a pre-charging voltage and supplying the stabilized pre-charging voltage as said pre-charging voltage to the pre-charging circuit, so as to suppress fluctuation in said pre-charging voltage is provided on a preceding stage of said pre-charging circuit, wherein said pre-charging voltage stabilizing section includes current controlling means composed of a resistor and charge holding means composed of a capacitance, where charge is supplied from the charge holding means when the pre-charging control signal is working and pre-charge voltage supplied from the control signal generating circuit is applied to

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the charge holding means while the pre-charging control signal is not working and current controlling means is used.

Regarding claim 11, none of the cited references teaches or suggests a driving method of an image display device, said device comprising a plurality of pixels disposed in a matrix, a display section, having a plurality of data signal lines for respective columns of the plurality of pixels and having a plurality of scanning lines corresponding to respective rows of the plurality of pixels, for displaying an image by writing a video signal from each data signal line into each pixel in synchronism with a scanning signal which is outputted from each scanning signal line; a data signal line driving circuit for outputting said video signal line to said plurality of data signal lines; a scanning signal line driving circuit for outputting said scanning signal to said plurality of scanning signal lines; a pre-charging circuit for writing a pre-charging voltage inputted in synchronism with a pre-charging control signal into the plurality of data signal lines in a predetermined period of time; said driving method comprising the step of supplying said pre-charging voltage to a pre-charging voltage stabilizing section which is composed of current controlling means and charge holding means and is provided on a preceding stage of said pre-charging circuit, said pre-charging voltage having an AC voltage in synchronism with one horizontal period of said video signal; and wherein charge is supplied from the charge holding means when the pre-charging control signal is working and pre-charge voltage supplied from the control signal generating circuit is applied to the charge holding means while the pre-charging control signal is not working, and current controlling means is used.

Regarding claim 14, none of the cited references teaches or suggests a driving method of an image display device, said device comprising a plurality of pixels disposed in a matrix; a display section, having a plurality of data signal lines for respective columns of the plurality of pixels and having a plurality of scanning signal lines corresponding to respective rows of the plurality of pixels, for displaying an image by writing a video signal from each data signal line into each pixel in synchronism with a scanning signal which is outputted from each scanning signal line; a data signal line driving circuit for outputting said video signal to said plurality of data signal lines; a scanning signal line driving circuit for outputting said scanning signal to said plurality of scanning signal lines; and a pre-charging circuit for writing a pre-charging voltage inputted in synchronism with a pre-charging control signal into the plurality of data signal lines in a predetermined period of time; and said driving method comprising the step of supplying said pre-charging voltage to a pre-charging voltage stabilizing section which is composed of current controlling means and charge holding means and is provided on a preceding stage of said pre-charging circuit, said pre-charging voltage having a DC voltage in synchronism with one horizontal period of said video signal, wherein charge is supplied from the charge holding means when the pre-charging control signal is working and pre-charge voltage supplied from the control signal generating circuit is applied to the charge holding means while the pre-charging control signal is not working, and current controlling means is used.

Regarding claim 16, none of the cited prior art teaches or suggests an image display device which displays an image by writing a video signal with respect to a plurality of pixels disposed in a matrix via a plurality of data signal lines, comprising a pre-charging circuit for

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writing a pre-charging voltage inputted in synchronism with a pre-charging control signal into the plurality of data signal lines in a pre-determined period of time before said video signal is written into said data signal lines a pre-charging voltage stabilizing circuit for stabilizing said pre-charging voltage so as to supply charges to said pre-charging circuit by said pre-charging voltage, the charge being not less than an amount of charges which was supplied to said data signal lines by said pre-charging circuit wherein said pre-charging voltage stabilizing circuit includes current controlling means composed of a resistor and charge holding means composed of a capacitance, where charge is supplied from the charge holding means when the pre-charging control signal is working and pre-charge voltage supplied from the control signal generating circuit is applied to the charge holding means while the pre-charging control signal is not working, and current controlling means is used.

Regarding claim 21, none of the cited prior art teaches or suggests a driving method of an image display device, said device comprising a plurality of pixels disposed in a matrix; a display section, having a plurality of data signal lines for respective columns of the plurality of pixels and having a plurality of scanning signal lines corresponding to respective rows of the plurality of pixels, for displaying an image by supplying a video signal from each data signal line to each pixel in correspondence with a scanning signal which is supplied from each scanning signal line; a data signal line driving circuit for outputting a video signal to the plurality of data signal lines in synchronism with a predetermined timing signal; a scanning signal line driving circuit for outputting a scanning signal to the plurality of scanning signal lines by a pulse width control signal which controls an output signal in synchronism with a scanning start signal and a scanning

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timing signal, and a signal width of the output signal; a pre-charging circuit for writing a pre-charging voltage inputted in synchronism with a pre-charging control signal into the plurality of data signal lines in a predetermined period of time; pre-charging voltage stabilizing means for stabilizing a pre-charging voltage from the pre-charging circuit; and a control signal generating circuit for supplying the circuits with a control signal so as to control operations thereof, said driving method comprising the step of suspending a scanning signal for a predetermined period of time when a pre-charging voltage stabilizing circuit having charge holding means and current controlling means as the pre-charging voltage stabilizing means is used to perform display at fixed brightness in first and second display areas which are respectively provided corresponding to a first portion and/or a second portion on a screen of the display section by a pre-charging voltage inputted from the pre-charging circuit, wherein charge is supplied from the charge holding means when the pre-charging control signal is working and pre-charge voltage supplied from the control signal generating circuit is applied to the charge holding means while the pre-charging control signal is not working, and current controlling means is used.

Regarding claim 37, none of the cited prior art teaches or suggests an image display device, comprising a plurality of pixels disposed in a matrix; a display section, having a plurality of data signal lines for respective columns of the plurality of pixels and having a plurality of scanning signal lines corresponding to respective rows of the plurality of pixels, for displaying an image by supplying a video signal from each data signal line to each pixel in correspondence with a scanning signal which is supplied from each scanning signal line; a data signal line driving circuit for outputting a video signal to the plurality of data signal lines in synchronism

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with a predetermined timing signal; a scanning signal line driving circuit for outputting a scanning signal to the plurality of scanning signal lines by a pulse width control signal which controls an output signal in synchronism with a scanning start signal and a scanning timing signal, and a signal width of the output signal; a pre-charging circuit for writing a pre-charging voltage inputted in synchronism with a pre-charging control signal into the plurality of data signal lines in a predetermined period of time; pre-charging voltage stabilizing means for stabilizing a pre-charging voltage from the pre-charging circuit; and a control signal generating circuit for supplying the circuits with a control signal so as to control operations thereof wherein: the pre-charging voltage stabilizing means includes a pre-charging voltage stabilizing circuit having charge holding means and current controlling means, where charge is supplied from the charge holding means when the pre-charging control signal is working and a pre-charge voltage supplied from the control signal generating circuit is applied to the charge holding means while the pre-charging control signal is not working, and current controlling means is used, and in a non-match image display mode, one portion of the display section is set as a video data non-display area which avoids display of video data, said image display device, further comprising: a control signal generating section for suspending a scanning signal for a predetermined period of time is provided in the control signal generating circuit, when performing display at fixed brightness in the video data non-display area by a pre-charging voltage inputted from the pre-charging circuit.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue

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fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

2. Any inquiry concerning this communication or earlier communication from the examiner should be directed to **Abbas Abdulsalam** whose telephone number is **(703) 305-8591**. The examiner can normally be reached on Monday through Friday (9:00-5:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Richard Hjerpe**, can be reached at **(703) 305-4709**.

Any response to this action should be mailed to:

Commissioner of patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9314

Hand delivered responses should be brought to Crystal Park II, Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology center 2600 customer Service office whose telephone number is (703) 306-0377.

Abbas Abdulsalam

Examiner

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October 25, 2004


XIAO WU
PRIMARY EXAMINER